



*symmetry*



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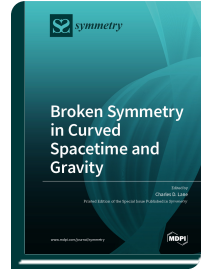
## **Broken Symmetry in Curved Spacetime and Gravity**

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Edited by  
Charles D. Lane

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This book contains several recent articles written about broken spacetime symmetry. The context is curved spacetime as used in General Relativity and the broken symmetry most discussed is Local Lorentz Symmetry. While there is currently no experimental evidence for broken Lorentz symmetry in nature, it is an object of great study from theoretical, phenomenological, and experimental perspectives. All three appear in this volume. There are three review articles in this volume: Fabian Kislak summarizes astrophysical probes of Lorentz violation, especially those using polarized light; Michael Seifert discusses a particular limit of the Standard-Model Extension that is useful for relating theoretical and experimental ideas; and Marco Schreck describes circumstances under which gravitational Cerenkov radiation could arise from Lorentz violation. The other three articles focus more on original research: Charles Lane and Quentin Bailey relate a particular theory of noncommutative geometry to the curved-spacetime Standard-Model Extension; Yuri Bonder and Christobal Corral consider the existence of spacetime symmetries in models with explicit Lorentz violation; and Pawel Gusin et al. study a spacetime transformation that relates the inside and outside of a nonrotating black hole.



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